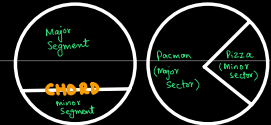
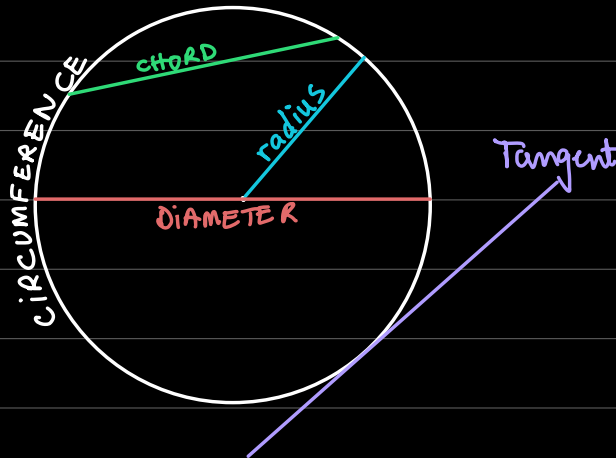


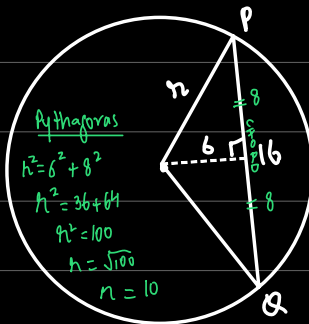
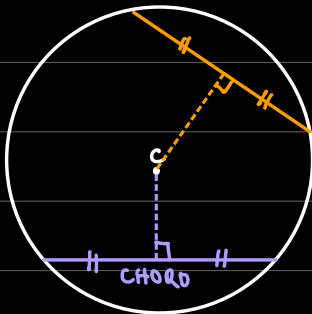
CIRCLES (P1) (4-5 Marks)

CHORD: Any line that touches the circle at two points.

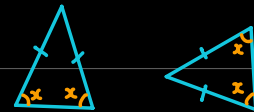
Diameter is also a chord. Its longest chord



1 90° MADE FROM CENTRE ON A CHORD CUTS THE CHORD IN TWO EQUAL HALVES.

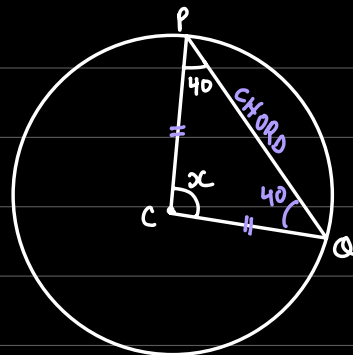
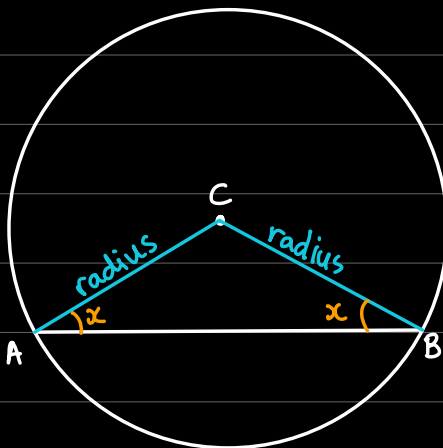


Isosceles Triangle



V.IMP

2 IF WE JOIN ENDS OF A CHORD TO CENTRE, IT MAKES AN ISOSCELES TRIANGLE



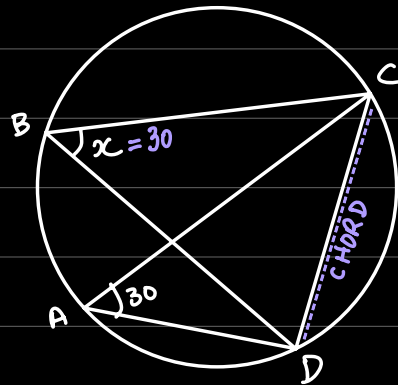
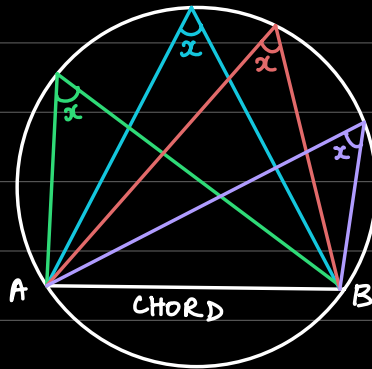
$$40 + 40 + x = 180$$

$$80 + x = 180$$

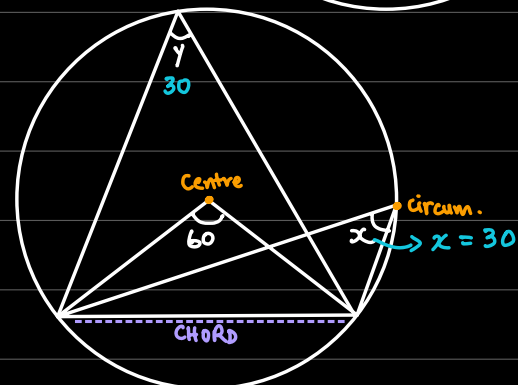
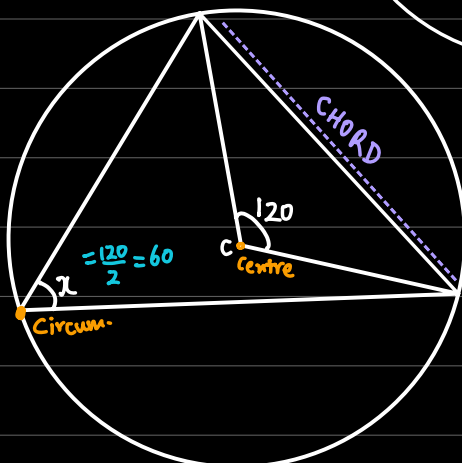
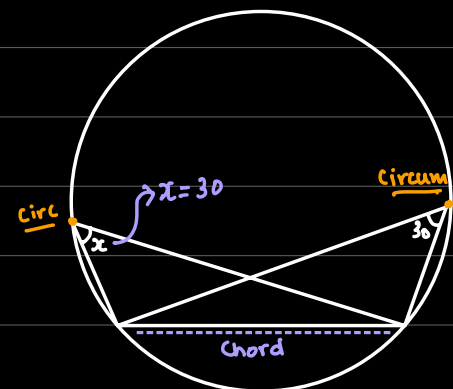
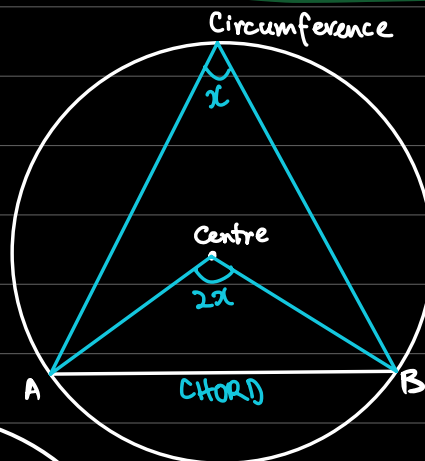
$$x = 100$$

ANGLES IN SAME SEGMENT

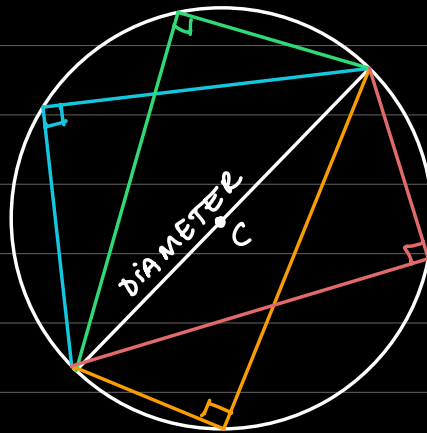
3 ANGLE MADE ON CIRCUMFERENCE STARTING FROM ENDS OF SAME CHORD ARE ALWAYS EQUAL.



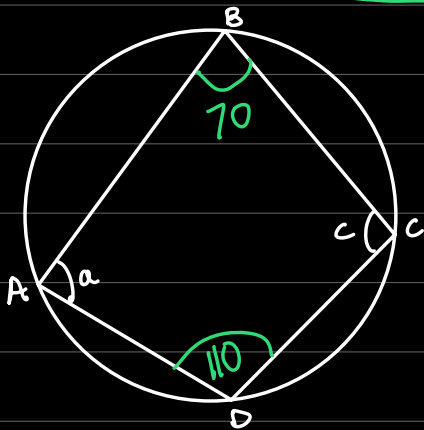
4 ANGLE MADE ON CENTRE IS DOUBLE THE ANGLE MADE ON CIRCUMFERENCE IF THEY START FROM SAME CHORD.



Imp 5 ANGLE MADE AT CIRCUMFERENCE STARTING FROM ENDS OF DIAMETER IS ALWAYS 90° .



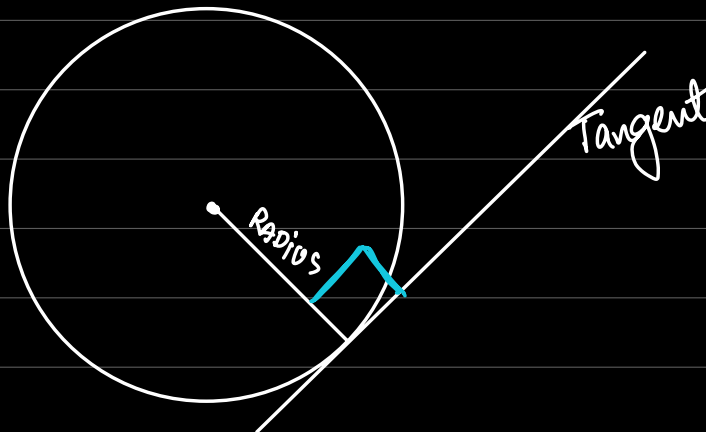
6 circle CYCLIC 4 sided shapes QUADRILATORAL.



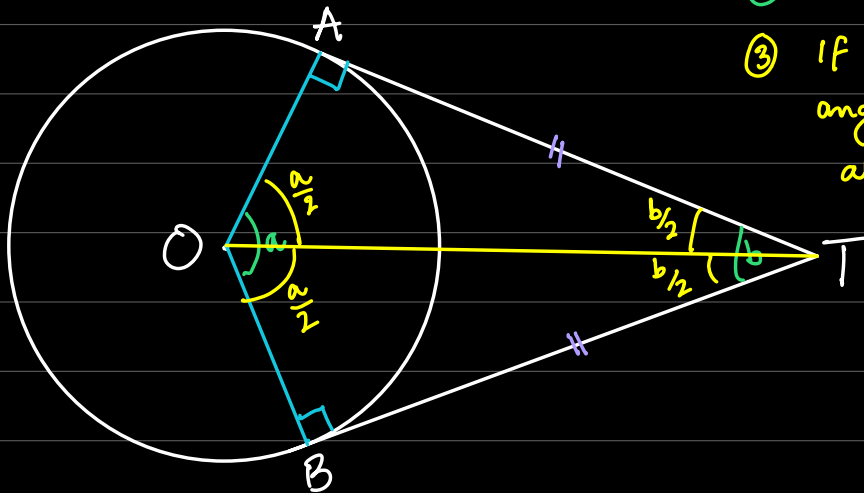
$$a + c = 180$$

$$b + d = 180$$

Imp 7 ANGLE BETWEEN RADIUS & TANGENT IS ALWAYS 90°



8 TANGENT KITE



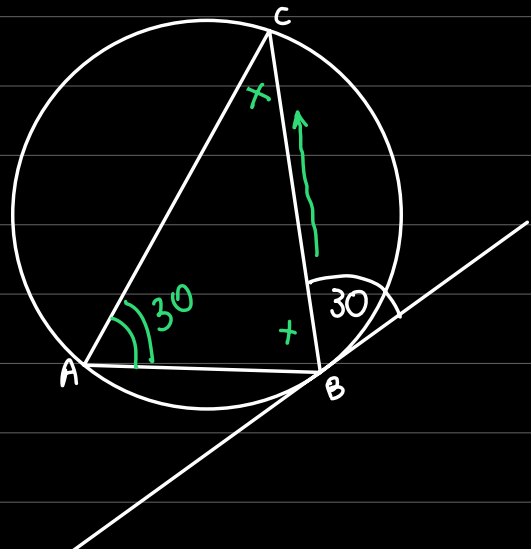
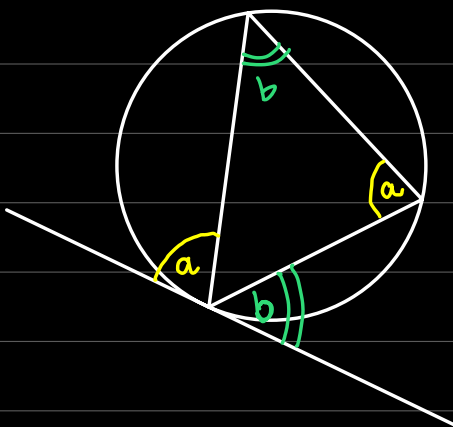
- ① $AT = BT$
- ② $a + b = 180$
- ③ If kite is cut in half angles a and b are also halved.

IMP

new addition in syllabus:

9 ALTERNATE SEGMENT THEOREM

In a circle a triangle will be made with corners on circumference. Tangent is drawn at a point where triangle touches the circle



EXAM QUESTION RULES

DO NOT READ THE REQUIRED ANGLES.

COMPLSORY
STEPS

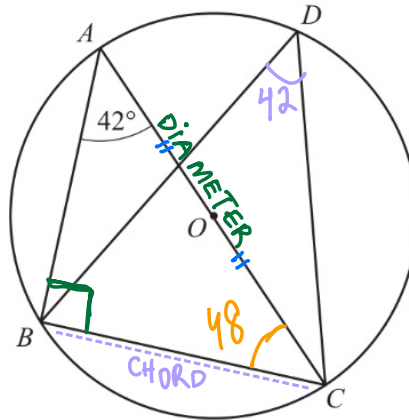
- 1- MARK ALL RADIUS (ISOSCELES) Rule 2
- 2- 90° made by DIAMETER Rule 5
- 3- 90° made by RADIUS & TANGENT Rule 7

4- CHORD PROPERTIES (alternate segment too)

5- CYCLIC QUADRILATORAL.

If there is a tangent kite, leave this process and apply kite properties first.

6

 $\triangle ABC$

$$90 + 42 + C = 180$$

$$C = 48$$

The diagram shows a circle, centre O , passing through A , B , C and D .
 AOC is a straight line and $\hat{BAC} = 42^\circ$.

Find

(a) $\hat{BDC} = 42$

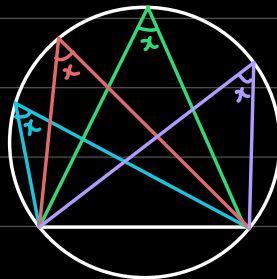
(b) $\hat{ABC} = 90$

(c) $\hat{ACB} = 48$

Answer (a) $\hat{BDC} = 42 \dots [1]$

(b) $\hat{ABC} = 90 \dots [1]$

(c) $\hat{ACB} = 48 \dots [1]$



ANGLES IN SAME SEGMENT

Angle made at
circumference starting
from same chord
are EQUAL.

- 12 In the diagram, the points A, B, C and D lie on the circle, centre O .

$$\hat{BAD} = 47^\circ$$

$\triangle ODB$ (isosceles)

$$\begin{array}{r} 180 \\ - 94 \\ \hline 86 \\ \div 2 \\ \hline 43 \end{array}$$

Find

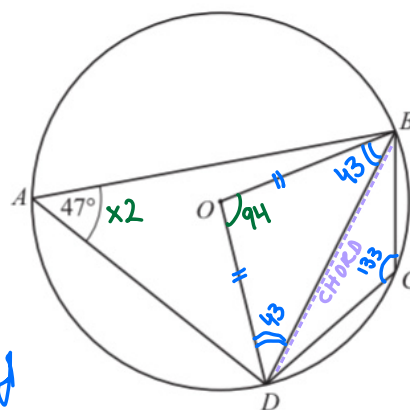
(a) $\hat{BOD}$,

$ABCD = \text{cyclic Quad}$

$$A + C = 180$$

$$47 + C = 180$$

$$C = 133$$



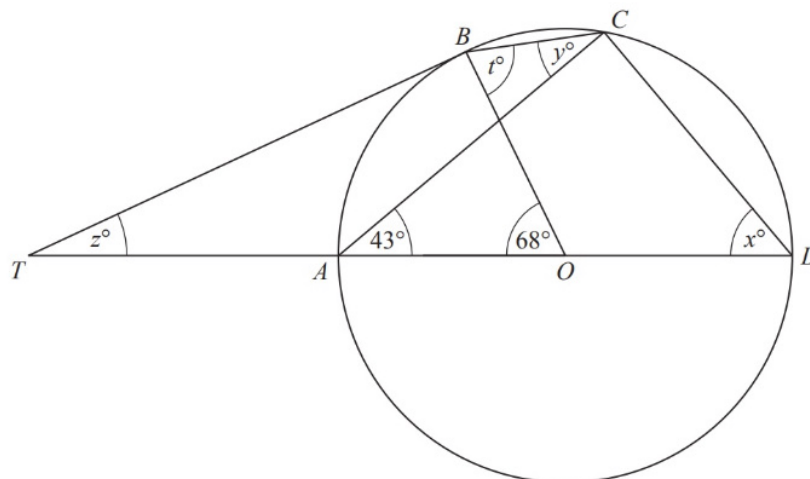
Answer $\hat{BOD} = 94$ [1]

(b) $\hat{BCD}$,

Answer $\hat{BCD} = 133$ [1]

(c) $\hat{OBD}$.

Answer $\hat{OBD} = 43$ [1]



In the diagram, A , B , C and D lie on the circle, centre O .
 AD is a diameter.
 The tangent to the circle at B meets the line DA produced at T .

$\angle AOB = 68^\circ$ and $\angle CAO = 43^\circ$.

(a) Find x .

Answer $x = \dots\dots\dots$ [1]

(b) Find y .

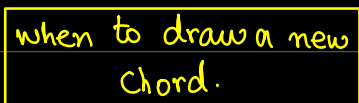
Answer $y = \dots\dots\dots$ [1]

(c) Find z .

Answer $z = \dots\dots\dots$ [1]

(d) Find t .

Answer $t = \dots\dots\dots$ [1]



WHEN YOU FIND TWO ANGLES
STARTING FROM SAME
POINTS ON CIRCLE, THAT
IS WHEN YOU NEED TO DRAW
A NEW CHORD

Sunday 3-5pm { 1h - Limits of accuracy
1h - Standard Form

Sat } vectors.
Sun }

→ IGCSE only days after that.